WHAT IS CLAIMED IS:

1. A configurable array for modifying an incident electromagnetic wireless signal having a frequency between 1kHz and 1000 THz, the array comprising at least a pair of switchable, powered, variable conductive elements selected from the group consisting of plasma-containing elements, semiconductor elements and photonic bandgap crystals, the array being configurable to at least one of filter, polarize, deflect at non-backscattering angles, and phase shift the incident electromagnetic wireless signal.

2. The array of claim 1, wherein the variable conductive elements as shaped as one of dipoles, circular dipoles, helicals, circular or square or other spirals, biconicals, hexagons, tripods, Jerusalem crosses, plus-sign crosses, annular rings, gang buster type antennas, tripole elements, anchor elements, star or spoked elements, alpha elements, gamma elements, and combinations thereof.

3. The array of claim 2, wherein the variable conductive elements are formed as non-conductive shaped slots surrounded by a corresponding shaped region of variable conductive material.

4. The array of claim 1, wherein the variable conductive elements are supported on a substrate.

5. The array of claim 4, wherein the at least a pair of variable conductive elements is a plurality of variable conductive elements.

6. The array of claim 5, wherein the variable conductive elements are oriented co-planar.

7. The array of claim 5, wherein the variable conductive elements are oriented on the perimeter of a closed volumetric shape.

8. A steerable antenna comprising:

an antenna for transmitting or receiving an electromagnetic signal within a frequency range from 1kHz to 1000 THz, the electromagnetic signal being generated or received by the antenna within radiation lobes of the antenna;

an electrically configurable shield at least partly surrounding the antenna to intersect the radiation lobes and located within an electromagnetically effective distance of the antenna, the shield being selectively configured to at least one of filter, polarize, propagate, steer, deflect at non-backscattering angles, and phase shift the electromagnetic signal in the frequency range along selected radials, the shield comprising at least two switchable, powered, variable conductive elements selected from the group consisting of plasma-containing elements, semiconductor elements and photonic bandgap crystals.

9. The steerable antenna according to claim 8, wherein the at least two variable conductive elements are arranged in a linear array.

10. The steerable antenna according to claim 8, wherein the at least two variable conductive elements are a plurality of variable conductive elements.

11. The steerable antenna according to claim 10, wherein the plurality of variable conductive elements form at least two distinct arrays in the shield, each array configured to selectively one of filter, polarize, propagate, steer, deflect at non-backscattering angles, or phase shift the electromagnetic signal.

12. The steerable antenna according to claim 11, wherein the shield has one of an arcuate, cylindrical, and other volumetric shape.

13. The steerable antenna according to claim 8, wherein distinct windows where the shield is transparent to the electromagnetic signal are formed through the shield by selectively configuring some of the variable conductive elements.

14. The steerable antenna according to claim 8, wherein the antenna comprises first and second antennas arranged co-axial, the first antenna broadcasting a first signal and surrounded by the second antenna broadcasting a second signal having a lower frequency than the first signal.

15. A wireless communications system having at least one station with a steerable antenna configured to transmit

or receive an electromagnetic wireless signal along selected radials, at least one remote station configured to receive transmissions from the steerable antenna positioned along one of the selected radials, the steerable antenna comprising:

an antenna for transmitting or receiving an electromagnetic wireless signal within a frequency range from 1kHz to 1000 THz, the electromagnetic signal being generated or received by the antenna within radiation lobes of the antenna; and

an electrically configurable shield at least partly surrounding the transmitting antenna to intersect the radiation lobes, and located within an electromagnetically effective distance of the antenna, the shield configurable to one of filter, polarize, propagate, steer, deflect at non-backscattering angles, and phase shift the electromagnetic wireless signal in the frequency range, the shield comprising at least a pair of switchable, powered, variable conductive elements selected from the group consisting of plasma-containing elements, semiconductor elements and photonic bandgap crystals oriented in an array.

16. The wireless communications system of claim 15, wherein the shield is configured to permit transmission along pre-determined radiation lobes corresponding to radials where the at least one remote station is located.

17. A configurable multiband antenna for broadcasting or receiving an electromagnetic wireless signal comprising:

at least two arrays of variable conductive elements arranged in a spaced apart stack of array layers, each array having at least a pair of switchable, powered, variable conductive elements selected from the group consisting of plasma-containing elements, semiconductor elements and photonic bandgap crystals.

18. The configurable multiband antenna of claim 17, wherein the variable conductive elements of each array are shaped as one of dipoles, circular dipoles, helicals, circular or square or other spirals, biconicals, hexagons, tripods, Jerusalem crosses, plus-sign crosses, annular rings, gang buster type antennas, tripole elements, anchor elements, star or spoked elements, alpha elements, gamma elements, and combinations thereof.

19. The configurable multiband antenna of claim 18, wherein the variable conductive elements are formed as non-conductive shaped slots surrounded by a corresponding shaped region of variable conductive material.

20. The configurable multiband antenna of claim 17, wherein, in each array, the variable conductive elements are oriented co-planar.

21. The configurable multiband antenna of claim 17, wherein, in each array, the variable conductive elements are oriented on the perimeter of a closed volumetric shape.